

## CLAIMS

1. An AM receiver for receiving an input signal (22) and generating a corresponding demodulated signal (Q), characterised in that the receiver (10) incorporates a transistor (14) biased to be simultaneously operable as a reflection amplifier for reflectively amplifying the input signal and as a detector for detecting the amplified input signal to generate the demodulated signal.
2. A receiver according to Claim 1 wherein the transistor (14) is operative in a non-linear region of its current/voltage transfer characteristic.
3. A receiver according to Claim 2 wherein the transistor is operable to conduct a current therethrough in a range of 5  $\mu$ A to 100  $\mu$ A to function in its non-linear region.
4. A receiver according to Claim 1, 2 or 3 wherein the transistor (14) incorporates an electrode (14g) for receiving the input signal, the electrode connected through a signal path (20) to a signal earth such that the path (20) is operable to convey reflected signals between the transistor and the signal earth, and to divert the input signal to the electrode (14g).
5. A receiver according to Claim 1, 2, 3 or 4 wherein the receiver (10) incorporates an antenna assembly (12) for receiving input radiation (22) and generating therefrom the input signal for the transistor.
6. A receiver according to Claim 1, 2, 3 or 4 arranged to provide a gain therethrough

which is responsive to input signal magnitude, thereby providing the receiver with an AGC characteristic.

7. An FM receiver incorporating an AM receiver according to any one of Claims 1 to 6, the FM receiver further comprising converting means for converting an input frequency modulated signal applied thereto into a corresponding amplitude modulated signal which the AM receiver is operable to demodulate to provide a demodulated output signal.
8. A receiver according to Claim 7 wherein the converting means comprises a band pass filter operable off resonance to convert the frequency modulated signal into the corresponding amplitude modulated signal.
9. A GPS receiver (100) incorporating one or more receivers (170) according to Claim 1, 2, 3, 4, 6 or 7, receiving means (120, 130) for receiving input radiation and generating a corresponding received signal ( $K_0$ ), and processing means (140, 150, 160, 170, 178, 180) for filtering, amplifying and gating the received signal ( $K_0$ ) to provide input signals for the one or more receivers (170) to demodulate to provide demodulated signals from which a positional reference for the GPS receiver (100) is derivable.
10. A receiver according to Claim 9 wherein the receiving means is a circularly polarised antenna.
11. A receiver according to Claim 9 or 10 wherein the processing means (140, 150, 160, 170, 178, 180) incorporates reflection amplifiers (172, 174, 176) for amplifying and

gating the received signal for generating the processed signals.

12. A receiver according to Claim 9, 10 or 11 wherein the processing means incorporates magnetostatic filtering and frequency selective limiting means (160) for processing the received signal.
13. An identification tag incorporating a receiver according to any one of Claims 1 to 8 operable to be responsive to radio radiation received thereat.
14. A wireless local area network for interconnecting computers, the network incorporating a receiver according to any one of Claims 1 to 8 for performing demodulation of signals within the network.
15. A mobile telephone incorporating a receiver according to any one of Claims 1 to 8 operable to provide demodulation of signals propagating therein.
16. An electronic security key incorporating a receiver according to any one of Claim 1 to 8 for performing demodulation of signals propagating therein.
17. A key according to Claim 16 wherein the receiver is housed within a key fob.
18. A method of amplitude demodulating an input signal using an AM receiver (10) according to Claim 1, the method comprising the simultaneously executable steps of:
- (a) receiving the input signal and reflectively amplifying it in the transistor (14) to generate an amplified input signal; and

- (b) passing the amplified input signal through the transistor (14) operating in a non-linear mode to demodulate it and thereby generate a corresponding demodulated signal (Q).

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